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1. An apparatus for [holding] incubating and determining the state of individual cells within a plurality of cells comprising:

a mechanism for incubating the plurality of cells having a dynamically controlled environment [in which the plurality of cells are grown], which is maintained in a desired condition and in which each individual cell of the plurality of cells can be individually examined over time while the environment is dynamically controlled and maintained in the desired condition; and

a mechanism for automatically determining the state of said individual cell over time [the cells], said determining mechanism in communication with the incubating mechanism while the environment is dynamically controlled and maintained in the desired condition, said determining mechanism in communication with the incubating mechanism [includes an imaging mechanism which individually images each cell of the plurality of cells in the incubating mechanism].

47. An apparatus as described in Claim [1] 124 wherein the imaging mechanism includes a mechanism for phase contrast imaging to identify the state of [each cell] said individual cell over time.

51. An apparatus for incubating and determining the state of individual cells within a plurality of cells comprising:

a mechanism for incubating the plurality of cells having a dynamically controlled environment [in which the cells are grown], which is maintained in a desired condition and in which each individual cell [cells] can be examined in real time over time while the environment is dynamically controlled and maintained in the desired condition; and

a mechanism for determining the state of [the] said individual [cells] cell in real time over time, said determining mechanism in communication with the incubating mechanism while the environment is dynamically controlled and maintained in the desired condition.

52. An apparatus as described in Claim 51 wherein the determining mechanism includes a mechanism for determining a biological event in [the] said individual cell.

57. An apparatus for [growing] incubating and determining the state of individual cells within a plurality of cells comprising:

a mechanism for incubating the plurality of cells having a dynamically controlled environment [in which the cells are grown], which is maintained in a desired

condition and in which each individual cell of the plurality of cells can be examined over time while the environment is dynamically controlled and maintained in the desired condition; and

a mechanism for automatically tracking and identifying division and differentiation of said individual cell [cells] over time, said incubating mechanism in communication with the tracking and identifying mechanism.

70. An apparatus for [growing] incubating and determining the state of individual cells within a plurality of cells comprising:

a mechanism for incubating a first cell and at least a second cell amongst the plurality of cells having a dynamically controlled environment [in which the first cell and at least the second cell are grown], which is maintained in a desired condition and in which the first cell and at least the second cell can be individually examined over time amongst the plurality of cells while the environment is dynamically controlled and maintained in the desired condition;

a mechanism for individually controlling the division and differentiation of the first cell and at least the second cell amongst the plurality of cells while the cells are in the incubating mechanism, said controlling mechanism controls the division and differentiation of

the first cell differently from the way it controls the division and differentiation of the second cell amongst the plurality of cells while the cells are in the incubating mechanism; and

a mechanism for individually tracking and identifying division and differentiation of the first cell and at least the second cell amongst the plurality of cells over time.

74. An apparatus for [holding] incubating and determining the state of a stem cell within a plurality of cells comprising:

[a mechanism for incubating the cell;]

a mechanism for incubating the plurality of cells having a dynamically controlled environment, which is maintained in a desired condition and in which each individual cell of the plurality of cells can be individually examined over time while the environment is dynamically controlled and maintained in the desired condition;

a mechanism for automatically determining a desired state of the stem cell within the plurality of cells, the determining mechanism connected to the incubating mechanism; and

a mechanism for introducing quiescence media to the stem cell within the plurality of cells in the incubating mechanism when the cell is in the desired state to inhibit the proliferation or selected differentiation of the cell, said introducing mechanism connected to the incubating mechanism.

75. An apparatus for [holding] incubating and determining the state of individual cells within a plurality of cells comprising:

a mechanism for incubating the plurality of cells having a dynamically controlled environment [in which the plurality of cells are grown], which is maintained in a desired condition and in which each individual cell of the plurality of cells can be individually examined over time while the environment is dynamically controlled and maintained in the desired condition, said incubating mechanism having a mechanism for controlling the environment about [each cell] said individual cell over time in the incubating mechanism to maintain the environment about [each cell] said individual cell over time in a desired condition; and

a mechanism for determining the state of [the cells] said individual cell over time, said determining mechanism in communication with the incubating mechanism.

80. An apparatus for [holding] incubating and determining the state of individual cells within a plurality of cells comprising:

[a mechanism for incubating the cells] a mechanism for incubating the plurality of cells having a dynamically controlled environment, which is maintained in a desired condition and in which each individual cell of the plurality of cells can be individually examined over time while the environment is dynamically controlled and maintained in the desired condition; and

a robotic mechanism including a robotic arm for dispensing and aspirating different material, a mechanism for controlling the environment about [each cell] said individual cell over time within the plurality of cells in the incubating mechanism to maintain the environment about [each cell] said individual cell over time within the plurality of cells in a desired condition[, to each cell of the plurality of cells].